The paediatric acute scrotum: are we still managing correctly?

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Objective **The objective of this study was to investigate current investigation and management practice in a general district hospital in the UK of the paediatric acute scrotum.**

Summary background **Diagnosis and management of the paediatric acute scrotum remains an elusive and often challenging area of urology. In response to this, the urology team developed local guidelines to aid the management and treatment of this potentially life-changing condition.**

Patients and methods **We reviewed the notes of all children (younger than 16 years of age) who presented with a diagnosis of acute scrotum over a 2-year period in Harrogate district hospital. We assessed the adherence to local guidelines, specifically the following: immediate urology review (within 1 h) and all patients with symptoms for less than 24 h should have immediate scrotal exploration. We also reviewed the discharge diagnosis.**

Results **A total of 55 case notes were reviewed, of which 44 were eligible for data analysis; 23 patients were seen within an hour or under from the review request. In total, 21 patients were transferred to the theatre, with 19% having a final diagnosis of testicular torsion, yielding an overall incidence on the basis of eligible patients of 9%.**

Conclusion **The paediatric acute scrotum is a potentially life-changing diagnosis, and timely review and action of management is important.** ***Ann Pediatr Surg*** **13:91–92 © 2017 Annals of Pediatric Surgery.**

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Introduction

Diagnosis and management of the paediatric acute scrotum remains an elusive and often challenging area of urology. We reviewed services in relation to presenting symptoms and eventual diagnosis in a general district hospital.

In Harrogate district foundation trust hospital, local guidelines have been implemented in an attempt to improve patient care. These state that all paediatric patients with a suspected diagnosis of an acute scrotum should undergo an immediate urology review (within 1 h) and all patients with symptoms for less than 24 h should undergo immediate scrotal exploration.

Patients and methods

We reviewed case notes of all patients coded with the following conditions over a 3-year period (2012, 2013, 6 months of 2014) in Harrogate district foundation trust who were 16 years of age or younger.

(1) Torsion of the hydatid.
(2) Epidimo-orchitis.
(3) Scrotal swelling.
(4) Scrotal trauma.

In addition to this, we reviewed any paediatric patients (younger than 16 years of age) transferred to the theatre for scrotal surgery.

Finally, any patient admitted under the care of a consultant urologist to the paediatric ward was also included in the data collection.

Results

A total of 55 patients were identified.

Overall, 11 patients were excluded following review of the notes.

(1) Five elective patients.
(2) Six patients with henoch-schonlein purpura.

This left 44 patients available for analysis.

Patients ranged in age from 4 months to 14 years.

(1) Out of 44 patient, 30 patients had symptoms for less than or equal to 24 h,
(2) twelve patients had pain over 24 h,
(3) two not documented.

In the less than or equal to 24 h group, 14 patients were transferred to the theatre and one was transferred to another hospital for further management. This was because of a shortage of theatre capacity owing to ongoing emergency operations and staff shortage.

Of the 30 patients with pain for less than 24 h, 10 underwent an ultrasound scan (USS). The decision to undergo USS was made primarily on the basis of speed of access and availability to imaging. Currently, USS of the scrotum is only available during 'normal working hours' (9 a.m. to 5 p.m. Monday–Friday) and is performed on the basis of radiologist availability. Because of the time-critical nature of this condition, USS was not always available. One patient was reported as showing a significant abnormality that was not related to torsion. Another

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patient was transferred to the theatre following a normal USS because of ongoing clinical symptoms of concern.

In total, 21 patients were transferred to the theatre. The findings were as follows:

(1) Four testicular torsions, of which in two patients, the testicle was not salvageable,
(2) 12 torsion of the hydatid of morgagni,
(3) four epididimo-orchitis,
(4) one patient with pus and necrosis within the scrotum (this patient had undergone an open appendectomy 3 days back),
(5) one ' no abnormality detected'.

Of the four patients with testicular torsion, all had absent cremesteric reflex.

One patient who underwent orchiectomy had symptoms for 36 h. The other had symptoms for 24 h.

All four patients had pain, with three of the four patients presenting with swelling.

All four patients had nausea and or vomiting and one patient had an abnormal-lying testicle.

Only one other patient was reported to have an absent cremesteric reflex, he was diagnosed with epidimo-orchitis following scrotal exploration.

The torsion rate in our patient population was 9% of all patients reviewed. The absence of a cremesteric reflex was the best predictor of testicular torsion.

This yielded a positive predictive value of absent cremesteric reflex in evaluating torsion of 0.8 with a negative predictive value of 1. This has, however, been calculated with very small numbers.

Discussion

Although clear guidelines were in place within the hospital, because of a number of factors, these were not always followed. However, the data that we collected suggest that in terms of 'testicles lost', there was no detriment to patients and that local guidelines were correct, but need to be adhered to more closely.

A combination of pain for less than 24 h, nausea/vomiting, abnormal cremesteric reflex and high position of the testes appeared to be predictive (100% sensitivity) in one study [1]; however, this was not reflected in this short review. A number of other clinical signs and symptoms have been assessed for their sensitivity and specificity in the diagnosis of testicular torsion; however, no clear single clinical feature has a 100% success rate and it would appear that a combination of features is more accurate in this respect [2].

In our study, a rate of 9% of acute scrotums was a result of testicular torsion; this rate was consistent with previous studies [3].

Imaging was used to aid diagnosis, but was limited because of organizational and resource issues; however, this should be considered if readily available as it can enable avoidance of an unnecessary surgical procedure [4,5]. However, despite the clear advantages associated with the use of noninvasive imaging, the best investigation is scrotal exploration [6].

If resources are available and access to noninvasive radiological investigations will not delay diagnosis or treatment, it seems reasonable to use these as a first step; however, all results should be interpreted with caution and assessed in a clinical context. If resources are not available in a timely manner, it is still reasonable to proceed directly to surgical scrotal exploration as there is a small but potentially life-changing risk to the testicle.

Conclusion

The paediatric acute scrotum is a potentially life-changing diagnosis, and timely review and action of management is important. Radiological investigations can be useful, but only if performed in a timely manner, and if any doubt remains, then scrotal exploration should be performed.

Conflicts of interest

There are no conflicts of interest.

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